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ABSTRACT

This report presents the results of classroom interaction research to determine if elementary and secondary school teachers in a North Carolina school district treated males and females differently, and to find out if an intervention strategy would foster more equitable treatment. An experimental group of teachers participated in workshops that provided information on sexism in communication and helped teachers to identify differential treatment of male and female students. The experimental group was compared with a control group on the nature of their interactions with students based on observer ratings on two kinds of instruments: 1) the PIT model, which quantified verbal and nonverbal behaviors in personal events (those related to emotions), institutional events (those concerned with classroom management and school operations), and task events (those concerned with teaching and learning subject matter); and 2) the IDER model, which categorized teachers' verbal behavior as direct or indirect, and nonverbal behavior as encouraging or restricting. The results did not conclusively support other research findings of differences in teachers' interactions with male and female students. Neither was it possible to conclude that the workshops resulted in differences in teacher behaviors, although the findings did suggest that the intervention might prompt teachers to become more encouraging and direct. The inconclusive results were partly attributed to inappropriate instruments and weak subject selection methods. (Author/MJL)

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IMPLEMENTING EDUCATIONAL EQUITY: ARE THERE TEACHER DIFFERENCES?

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UD 022 318

"Implementing Educational Equity: Are there Teacher Differences?"

Donna Young and Elizabeth Wyman

Introduction

Numerous classroom interaction studies have alluded to the differential treatment of males and females. A review of this literature suggests that teachers have more contacts of all kinds with males (Meyer and Thompson, 1956; Baus, 1976; Safilios-Rothchild, 1979). Boys receive more praise and punishment (Meyer and Thompson, 1956; Lippitt and Gold, 1959; Spaulding, 1963; Jackson and Lahaderne, 1971). Teachers call on and accept the ideas and feelings of boys more frequently, but also reject and criticize boys more than girls. Teachers call on volunteering boys more frequently than volunteering girls (Felsenthal, 1970; Guttentag and Bray, 1976). Boys initiate more contact with the teachers and likewise teachers initiate more contact with the boys (Brophy and Good, 1974; Cosper, 1970). Teachers conduct more prolonged conversations with boys than girls and ask boys more abstract and complex, open-ended questions (Sikes, 1971; Serbin and O'Leary, 1975).

There is evidence that differences in mathematics and reading performance can be attributed to the types of contact that teachers have with students. Leihnardt, Seewald, and Engle (1979) discovered that: teachers made more academic contact with girls in reading and boys in math; teachers spent more cognitive time with girls in reading and boys in math; and teachers consistently made more managerial contacts with boys than girls. Although there were no differences initially in abilities, sex differences were found at the end of the academic year in reading achievement.

A study conducted by Dweck et al (1978) found significant sex differences in the types of work related criticism given to students. While 90 percent of work related criticism given to girls focused on intellectual inadequacy, boys intellectual ability was focused on in only a little more than 50 percent of academic work related criticisms. These researchers also found differences in work related praise. Approximately 90 percent of boys' work related praise focused on intellectual competence. However, only 80 percent of girls' work related praise focused on innate ability.

Based upon these reports it was assumed that differential treatment of males and females was probably occuring in the school district. The purpose of this study was twofold: (1) to determine if teachers in the school district treated males and females differently, and (2) to see if an intervention strategy would foster more equitable treatment.

Population

The school district is a small rural school district in North Carolina. It is one of five school districts in the nation designated as a model educationally equitable school system. The school system is working with The University of Tennessee through a contract with the Women's Educational Equity Act Program. The goal of the project is to implement bias free curricula materials which would foster a school environment of equality.

Twenty classroom teachers were chosen to participate in the classroom interaction study. Ten teachers who comprised the experimental treatment group were selected because they had shown a high level of interest in the Project, had planned to use equity materials in their classrooms and had agreed to attend the three training workshops. The remaining ten teachers,

comprising the control group were chosen from among the teachers who were not involved in the Project in any way. Both the control and the experimental groups consisted of six elementary teachers and four secondary teachers. Teachers in both groups were matched by subject area at the secondary level, and grade taught at the elementary level insofar as possible to overcome the differential nature of the classes.

METHODOLOGY

A pretest-posttest control group design was selected to detect changes in teacher behavior.* A nonequivalent control group design was used because it was not feasible to assign classrooms randomly to conditions.

In order to be able to check the reliability of the classroom interaction analysis, it was decided to videotape the classes to be analyzed. Pretest tapes were made in November, 1980, in all twenty classrooms.** The twenty posttest tapes were completed in April, 1981. From each of the forty videotapes a fifteen-minute segment was selected for analysis. Because it can be difficult to identify whether students, especially elementary students, are male or female on a videotape, a chart of classroom seating arrangements by sex was drawn by the videotape camera operator each a tape was made. Two systems of analysis were used: the IDER and the PIT.

TREATMENT

In addition to showing high interest in Project NEED and using equity classroom materials, teachers in the treatment group participated in a

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*The pretest-posttest design was not a paper/pencil measure. It was a pre and posttreatment measure of teacher behavior.

**"Dummy" taping sessions familiarized teachers and students with the equipment and the presence of researchers in the classroom.

three-session training workshop. Each session lasted four hours. The workshops were conducted by the Project Associate Director and Dr. Russell French of The University of Tennessee's College of Education. (Refer to Appendix A for agenda).

The first part of each session was devoted to a presentation of research findings on sexism in verbal and nonverbal communication. The second part consisted of training in identifying different ways that teachers communicate nonverbally. The third workshop session included a series of exercises developed by Sadker and Sadker (1980) to assist teachers in identifying differential treatment of male and female students.

THE PIT MODEL*

The PIT Model was developed by French (1968) as a simple tool for quantifying teacher/pupil interactions. PIT is an acronym of Personal, Institutional, and Task, the major categories of communication events in the model. In this study communication events consisted of verbal and nonverbal behaviors by the teacher directed toward individual students or to a group of students. For coding and analysis, verbal and nonverbal responses were combined.

Personal Events. Personal events are characterized by a focus on the emotions and personal needs or goals of the pupils or teacher. Relevant emotional expressions are admiration, amusement, boredom, cheerfulness, despair, disgust, dislike, fear, impatience, joy, satisfaction, and surprise. The following are examples of Personal events:

1. Teacher reaction to pupil expression of frustration.
2. Teacher expression of personal interest or concern about a student or student's problem.

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*This section is adapted from Crawford (1980).

3. Teacher reaction to pupil expression of affection toward the teacher.

Institutional Events. Institutional events are those which entail managing the classroom and meeting the requirements of the institution. The following are examples of Institutional events:

1. Verbal and/or nonverbal reprimands for breaking school regulations.
2. Handing out quiz papers and explaining grading procedures.
3. Calling roll and pupils responding.
4. Preparing to view a film.
5. Announcements of school events.
6. Calling for, signing, and discussing pupils' absence excuses.
7. Attempts to maintain silence.

Task Events. Task events concern the teaching and learning of subject matter content. Task events may include stating, asking, showing, acknowledging, and clarifying communications by teachers or students. The following are examples of Task events:

1. Teacher-pupil discussion of the functions of Congress.
2. Teacher demonstration of map reading.
3. Teacher assisting students who are using microscopes.
4. Teacher aiding students who are working independently.

THE IDER MODEL

The name IDER is derived from the first letters of the major categories of communication types: Indirect, Direct, Encouraging, Restricting. The system is an expansion of the Flanders System of Interaction Analysis by the addition of the nonverbal Encouraging and Restricting dimensions and was developed by French and Galloway (1969). The IDER is based on the assumption that for each teacher verbal behavior there is an accompanying nonverbal behavior. Furthermore, these nonverbal behaviors can also be categorized and classified as either encouraging or restricting in accordance with the Flanders System. A schematic of IDER appers in Figure 1.

Figure 1: IDER Schematic[1]

		VERBAL	NONVERBAL	
TEACHER TALK	Indirect Influence	1. ACCEPTS FEELINGS	ENCOURAGING	RESTRICTING
			1.	1.
		2. PRAISES OR ENCOURAGES	2. CONGRUENT: nonverbal cues reinforce and further clarify the credibility of a verbal message.	2. INCONGRUENT: contradiction occurs between verbal and nonverbal cues.
		3. ACCEPTS OR USES IDEAS OF STUDENTS	3. IMPLEMENTATION: occurs when the teacher actually uses student's idea either by discussing it, reflecting on it or turning it to the class for consideration.	3. PERFUNCTORY USE: occurs when the teacher merely recognizes student's idea by automatically repeating or restating it.
		4. ASKS QUESTIONS	4. PERSONAL: face-to-face confrontation.	4. IMPERSONAL avoidance of verbal interchange in which mutual glances are exchanged.
	Direct Influence	5. LECTURES	5. RESPONSIVE: change in teacher's pace or direction of talk in response to student behavior, i.e., bored, disinterested, inattentive.	5. UNRESPONSIVE: inability or unwillingness to alter the pace or direction of lecture disregarding pupil cues.
		6. GIVES DIRECTIONS	6. INVOLVE: students are involved in clarification or maintenance of learning tasks.	6. DISMISS: teacher dismisses or controls student behavior.
		7. CRITICIZES OR JUSTIFIES AUTHORITY	7. FIRM: criticisms which evaluate a situation cleanly and crisply and clarify expectations for the situation.	7. HARSH: criticisms which are hostile, severe and often denote aggressive or defensive behavior.
STUDENT TALK		8. STUDENT TALK (RESPONSE)	8 & 9. RECEPTIVE: involved attitude of listening and interest, facial involvement and eye contact.	8 & 9. INATTENTIVE: involves a lack of attending eye contact and teacher travel or movement.
		9. STUDENT TALK (INITIATION)		
		SILENCE OR CONFUSION	10. COMFORT: silences characterized by times of reflection, thought or work.	10. DISTRESS: instances of embarrassment or tension-filled moments, usually reflecting disorganization and disorientation.

[1]Inside Classrooms: Studies in Verbal and Nonverbal Communications, C. M. Achilles and R. L. French (Eds.). The Interstate Printers and Publishers, Inc., Danville, IL, 1977, p. 76.

As can be seen from the figure, the categories of the IDER are subgrouped into four major dimensions: I--indirect, D--direct, E--encouraging, and R--restricting. Verbal behaviors are separated into Indirect and Direct behaviors. Indirect verbal behaviors are those in categories one through four, while Direct verbal behaviors occur in categories five through seven. An I/D ratio is the ratio of Indirect to Direct verbal behaviors. Nonverbal behaviors are separated into Encouraging and Restricting dimensions. All ten categories are separated into these two dimensions. Encouraging behaviors are those that encourage further interaction. An E/R ratio is the ratio of Encouraging to Restricting behaviors.

The validity of IDER has been established in numerous ways, including construct validation. The IDER is theoretically close to the Flanders Interaction Analysis System and derives its validity from an identical set of assumptions underlying the Flanders system. Additional information on validating these instruments is contained in French (1968), French and Galloway (1969), and Cosper (1970).

RATER TRAINING

Two graduate students, one male and one female, in the College of Education were trained in the IDER and PIT rating systems by Dr. French, co-developer of the IDER system. Inter-rater reliability was established by comparing ratings of the same classroom segments compiled by each rater with those of the "expert" and with each other. Two coefficients of reliability were computed, percent of agreement, and the Scott coefficient (Scott, 1955). Once reliability had been established initially, the accuracy of the raters was monitored by comparing reliability coefficients after approximately one-third and two-thirds of the tapes had been rated. This was done for both PIT and IDER systems on pretest and posttest tapes. The level of reliability was above .90 in all instances.

PIT. The rating process itself involves timing and accurate categorization. Every three seconds the observer coded the teacher verbal and nonverbal behaviors and noted whether the behaviors were directed toward a male student, a female student, or the group. These are recorded in sequence in a column with 20 codings per column, thus each column contains the interaction record for one minute. Each three second interval for which the behavior is coded and recorded is termed a "communication event." (Refer to Appendix B for coding sheet).

IDER. Teacher verbal and nonverbal behaviors were recorded at three-second intervals for 15 minutes using a modified 11 x 17 IDER matrix. (Refer to Appendix C for matrix). Raters used a coding system to note the nature of the communication and to determine whether it was directed toward male or female students.

ANALYSIS AND RESULTS

For purposes of analysis the average number of teacher responses directed toward males and females were calculated. To take into account the relative numbers of boys and girls in the class or group with whom the teacher was involved, the number of teacher responses of a particular type directed toward girls was divided by the number of girls in the group. The resulting figure represented the average number of teacher responses of that type directed toward girls. The same procedure was followed in examining responses directed toward boys.

PIT Analysis and Results

Average teacher responses were computed for personal, institutional, and task events. Analyses were performed to detect: (1) score differences between male and female students at pre and posttest for both group, (2) differences in scores between the experimental and control groups at pre and posttest, and (3) scored differences between pre and posttest for experimental and control groups.

The average teacher responses directed to females and males for the experimental and control groups on the pretest is presented in Table 1. The most noticeable difference occurs in the task event. Teachers in the experimental and control groups directed more task responses to females. However, independent t-tests for significant differences revealed that the

average responses for males and females on the three events were not different at the .05 level of significance. Thus, one can conclude that the experimental and control groups did not differ in their responses directed to males and females on the pretest.

TABLE 1: Average Teacher Responses Directed to Females and Males for Experimental and Control Groups on Pretest

	Average Pretest Responses					
	Personal		Institutional		Task	
	Female	Male	Female	Male	Female	Male
Experimental	0.090	0.123	0.356	0.387	4.522	3.727
Control	0.506	0.000	0.094	0.150	4.926	3.080

Table 2 gives the average teacher responses for females and males in the experimental and control groups on the posttest. Again, the most noticeable differences were in the task event. Teachers in both groups still responded more to females on task events. However, there were no significant differences (.05 level) between teacher responses directed toward males and females on the three events for experimental or control groups on the posttest. The same conclusion drawn for the pretest can be made for the posttest. The experimental and control groups did not differ in their responses directed to females and males.

TABLE 2: Average Teacher Responses Directed to Females and Males for Experimental and Control Groups on Posttest

	Average Posttest Responses					
	Personal		Institutional		Task	
	Female	Male	Female	Male	Female	Male
Experimental	0.124	0.391	0.050	0.115	5.659	4.827
Control	0.180	1.000	0.050	0.027	4.731	4.473

Table 3 compares the experimental and control teachers' average responses directed to females and males on pre and posttest. The greatest difference between the two groups occurred on the task event. Control teachers had a higher average teacher response directed toward females on the pretest, while the experimental group had higher average teacher responses for males on the pretest. On the posttest the experimental group directed more task responses to both males and females than did the control group. The differences were not statistically significant. There were no significant differences between the experimental and control groups before or after treatment.

TABLE 3: Experimental and Control Teachers' Average Responses Directed to Males and Females on Pre and Posttest

	Pretest Average Responses		Posttest Average Responses	
Category-Gender	Experimental	Control	Experimental	Control
Personal-Female	0.090	0.506	0.124	0.180
Personal-Male	0.123	0.000	0.391	1.000
Institutional-Female	0.356	0.094	0.050	0.050
Institutional-Male	0.387	0.150	0.115	0.027
Task-Female	4.522	4.926	5.659	4.731
Task-Male	3.727	3.080	4.827	4.473

Finally, paired t-tests were calculated to see if differences in average teacher responses existed for the experimental and control groups between pre and posttest. As can be noted from Table 4, the most noteworthy changes occurred in the task event. Average teacher responses directed to males and females increased on the posttest for the experimental group. The average teacher responses directed to males also increased for the control group on the posttest. However, the control group average

teacher response directed to females decreased on the posttest. Although directional changes occurred, the changes were not statistically significant for either experimental or control groups on pre and posttest.

TABLE 4: Comparison of Average Pre/Posttest Scores for PIT Communication by Gender for Experimental/Control Groups

	Experimental Group Average Responses		Control Group Average Responses	
Category-Gender	Pretest	Posttest	Pretest	Posttest
Personal-Female	0.090	0.124	0.506	0.180
Personal-Male	0.123	0.391	0.000	1.000
Institutional-Female	0.356	0.050	0.094	0.050
Institutional-Male	0.387	0.115	0.150	0.027
Task-Female	4.522	5.659	4.926	4.731
Task-Male	3.727	4.827	3.080	4.473

IDER Analysis and Results

Average teacher responses were computed for each IDER category and dimension. I/D and E/R ratios were also calculated. The t-test for significant differences was used in the following analyses: to assess differences between the experimental and control group on the IDER categories on pre and posttest; to measure differences between and within the experimental and control groups on the I, D, E, and R dimensions for pre and posttest; to detect differences between males and females within the experimental and control groups on the I, D, E, and R dimensions for pre and posttest; to assess differences on I/D and E/R ratios between and within the experimental and control groups for pre and posttest; and to measure differences in E/R and I/D ratios for males and females within the experimental and control groups on pre and posttest.

When the IDER categories were analyzed, neither the control or experimental group differed significantly in their average responses on the pre or posttest. However, significant differences emerged between the groups when analyses were performed on the I, D, E, and R dimensions. Table 5 summarizes the differences between the experimental group (Group 1) and the control group (Group 2) on the pretest as well as posttest. There are two statistically significant differences between groups on the pretest: the girls in the experimental group were receiving more direct-encouraging behaviors from teachers than were girls in the Control Group and the girls in Group 1 were receiving more direct-total behaviors than were girls in Group 2. These differences remained significant on the posttest. Significant differences were also found on the posttest for direct-encouraging and direct-total for males.

The experimental group expressed more direct-encouraging and direct-total responses to the females on both pre and posttest than the control group. The increase in direct-encouraging and total-direct responses to males on the posttest suggests that the treatment may have prompted experimental teachers to be more encouraging and direct to males as well as females. This difference for males might be attributed to the treatment effect.

A within-group comparison for control and experimental groups showed no significant differences in average teacher responses for I, D, E, and R between pre or posttest. Although no statistical significance existed, the experimental group showed more change than the control group on 12 of the areas listed. Of particular interest is the increase in direct-encouraging behaviors, direct-total, and encouraging-total for both females and males in the experimental groups. All of those responses increased from pre to posttest. (Refer to Table 6).

TABLE 5: Average Teacher Responses on I, D, E, and R Dimensions Between Experimental and Control Groups for Pre and Posttest

	Pretest			Posttest		
Category/Gender	Experimental Group 1	Control Group 2	2-Tail Probability	Experimental Group 1	Control Group 2	2-Tail Probability
Indirect Encouraging--F	2.499	2.684	.883	2.257	3.048	.730
Indirect Encouraging--M	2.186	2.119	.947	2.329	1.665	.615
Indirect Restricting--F	/	/	NC	/	/	NC
Indirect Restricting--M	/	/	NC	/	/	NC
Direct Encouraging--F	1.644	0.557	.038*	3.308	0.879	.055*
Direct Encouraging--M	1.336	0.571	.169	1.949	0.452	.033*
Direct Restricting--F	0.075	0.028	.558	0.051	0.042	.859
Direct Restricting--M	0.122	0.167	.756	0.048	0.116	.351
Indirect Total--F	2.508	2.714	.869	2.257	3.048	.730
Indirect Total--M	2.206	2.135	.943	2.354	1.665	.601
Direct Total--F	1.719	0.588	.042*	3.358	0.921	.052*
Direct Total--M	1.458	0.738	.206	1.996	0.569	.042*
Encouraging Total--F	4.143	3.276	.619	5.564	3.926	.556
Encouraging Total--M	3.523	2.690	.538	4.278	2.118	.168
Restricting Total--F	0.084	0.058	.754	/	/	NC
Restricting Total--M	0.142	0.183	.779	0.073	0.116	.561

*p< .05
/ = less than .050
NC = Not Calculated
F = Female
M = Male

TABLE 6: Average Teacher Responses on I, D, E, and R Dimensions Between Pre and Posttreatment for Experimental and Control Groups

Category/Gender	Experimental--Group 1			Control--Group 2		
	Pre-treatment	Post-treatment	2-Tail Probability	Pre-treatment	Post-treatment	2-Tail Probability
Indirect Encouraging--F	2.499	2.257	.701	2.684	3.048	.796
Indirect Encouraging--M	2.186	2.328	.805	2.119	1.665	.656
Direct Encouraging--F	1.644	3.308	.144	0.557	0.956	.245
Direct Encouraging--M	1.336	1.949	.355	0.571	0.452	.773
Indirect Restricting--F	/	/	NC	/	/	NC
Indirect Restricting--M	/	/	NC	/	/	NC
Direct Restricting--F	0.075	0.051	.788	/	/	NC
Direct Restricting--M	0.122	0.048	.302	0.167	0.116	.758
Indirect Total--F	2.508	2.257	.691	2.714	3.048	.813
Indirect Total--M	2.206	2.354	.799	2.135	1.665	.645
Direct Total--F	1.719	3.358	.153	0.588	1.003	.245
Direct Total--M	1.458	1.996	.414	0.738	0.569	.713
Encouraging Total--F	4.143	5.564	.302	3.276	4.171	.559
Encouraging Total--M	3.523	4.278	.37[illegible]	2.690	2.118	.498
Restricting Total--F	0.084	0.051	.713	0.058	0.042	.752
Restricting Total--M	0.142	0.073	.409	0.183	0.116	.683

/ = less than .050 F = Female
NC = Not Calculated M = Male

Table 7 was included to highlight any actual differences in treatment of females and males at both pretest and posttest within the experimental and control groups. The t-test results presented in this table show no significant differences between females and males at pretest. However, there are significant differences between females and males at posttest on two dimensions. At posttest the females in the experimental group (Group 1) received significantly more direct-encouraging interactions from teachers than did males in Group 1. In addition, the females in Group 1 received significantly more direct-total interactions than did males in Group 1 at posttest. Since direct-encouraging constitutes a part of the total group of direct interaction, the significant difference in total-direct interactions appears to be primarily a function of those of the encouraging type. Thus, it can be concluded that the teachers in the experimental group directed more encouraging and direct-total responses to females than to males on the posttest.

I/D and E/R ratios were computed for experimental and control groups on pre and posttest. No significant differences existed between the two groups on either pre or posttest. It should be noted that E/R ratios could be computed for only a few teachers due to the complete absence of restricting behaviors for the other teachers. This might have contributed to the lack of significant differences between groups.

Comparisons were also made to determine if differences in I/D and E/R ratios existed between males and females in the two groups for pre and posttest. Again, there were no significant differences.

Table 8 gives direct comparisons between pre and posttest I/D and E/R scores within the experimental and control groups. Although the ratios suggest directional changes, the only statistically significant change

TABLE 7: Average Teacher Responses on I, D, E, and R Dimensions Between Males and Females on Pretest and Posttest

	Pretest			Posttest		
Category/Group #	Females	Males	2-Tail Probability	Females	Males	2-Tail Probability
Indirect Encouraging--1	2.499	2.186	.511	2.257	2.329	.909
Indirect Encouraging--2	2.684	2.119	.456	3.048	1.665	.259
Indirect Restricting--1	/	/	NC	/	/	NC
Indirect Restricting--2	/	/	NC	/	/	NC
Direct Encouraging--1	1.644	1.336	.268	3.308	1.949	.049*
Direct Encouraging--2	0.557	0.592	.812	0.879	0.452	.173
Direct Restricting--1	0.075	0.122	.477	0.051	0.048	.871
Direct Restricting--2	0.028	0.167	.337	0.042	0.116	.061
Indirect Total--1	2.508	2.206	.527	2.257	2.354	.876
Indirect Total--2	2.714	2.135	.445	3.048	1.665	.259
Direct Total--1	1.719	1.458	.348	3.359	1.996	.048*
Direct Total--2	0.588	0.778	.389	0.921	0.569	.260
Encouraging Total--1	4.143	3.523	.397	5.563	4.278	.233
Encouraging Total--2	3.276	2.741	.494	3.926	2.118	.211
Restricting Total--1	0.084	0.142	.435	0.051	0.073	.509
Restricting Total--2	0.058	0.183	.401	0.042	0.116	.061

/ = less than .050
NC = Not Calculated
Group 1 = Experimental
Group 2 = Control
* $p < .05$

TABLE 8: I/D and E/R Ratios Within Experimental and Control Groups Between Pre and Posttest

	Experimental--Group 1				Control--Group 2			
Category/ Gender	Pretest	Posttest	2-Tail Probability		Pretest	Posttest	2-Tail Probability	
			N				N	
Female I/D	1.945	0.798	9	.080	2.538	2.418	5	.951
Male I/D	2.279	2.957	8	.792	6.124	1.220	5	.050*
Female E/R	/	/	0	NC	6.500	14.000	1	NC
Male E/R	8.000	59.000	1	NC	19.000	6.750	2	NC

/ = less than .050

NC = Not Calculated

* p .05

was the male I/D ratio for the Control group. The male I/D ratio decreased significantly on the posttest. The control teachers emitted more direct verbal responses to the males on posttest. The E/R ratio differences were not analyzed because of the small number of restricting behaviors displayed by the teachers in both groups.

DISCUSSION AND CONCLUSION

Results from the PJT indicated that no significant differences in teacher responses exist between males and females for either experimental or control on pre and posttest. This implies that no sex differences existed for either the experimental or control group on pre and posttest.

Results also showed that no significant differences existed between or within the experimental and control group on pre and posttest. This suggests that the treatment had no significant effect on the experimental group. However, it can be noted that the experiment group achieved higher average responses for males and females on task events at the posttest than the control group. Although these differences were not significant, they were directional.

Results from the IDER indicate that the teachers in the experimental group may have differed initially from the control group. Analysis of the I, D, E, and R dimensions shows that the experimental teachers were significantly different from control teachers on the pretest in respect to encouraging and total direct response directed to females. These differences remained on the posttest. It is possible that teachers who were more encouraging and direct to females were more interested in becoming involved in the equity project than were teachers who may not have

been as encouraging or direct. The experimental teachers also differed significantly from the control teachers on the posttest in the encouraging and total-direct responses to males. Perhpas the treatment prompted the teachers to emit more encouraging and total-direct responses to males in order to promote more equitable classroom practices.

Results from the IDER suggest that no difference between males and females existed within the experimental or control group for the pretest. However, significant differences were found between males and females in the experimental group on the posttest. Teachers in the experimental group had higher encouraging and total direct behaviors for females than for males after the treatment. Since most of the inequities in classroom practices presented in the workshop focused on females, the teachers may have been exhibiting over-learned behavior in an effort to compensate for perceived differences for female students.

Several limitations are associated with this study. All of the teachers were aware of the goals of the Project, and they knew that the videotaping was a part of the educational equity program. Although only those actively involved with the Project's goals received treatment, the other teachers were not immune to the objectives. Ideally, the control group should have been selected from another school district in order to minimize the internal and external threats to validity.

The post observations were made shortly after the treatment. Perhaps more time should have elapsed between treatment and posttaping so that teachers could internalize the material presented to them.

By compensating for the relative numbers of male and female students in the groups, the resulting number of teacher responses directed to females

and males as the unit of analysis resulted in extremely small numbers. Thus, the range and standard deviation are narrow. Also, the fifteen-minute segments may not have been long enough for patterns of differential treatment to emerge.

Most of the intervention focused on nonverbal and verbal components of teacher interactions. Only a small amount of time was devoted to the discussion of inequities in classroom practices. Had the treatment focused more on promoting equitable classroom practices, the treatment effect may have been more significant.

Results of this experiment do not conclusively support other research reports on sex differences nor do they totally attribute the intervention treatment with differences in teacher behaviors. The absence of differences may be a result of the instruments employed. The IDER and PIT were designed as indices for assessing classroom interaction patterns and may not be appropriate for measuring sex differences.

The events of the PIT and the categories of the IDER are broad and inclusive rather than focusing on more specific teacher behaviors known to be used differently with male and female students. Thus, other instruments having validity and reliability in sex differences on classroom behaviors might have been more appropriate.

One must also consider that there may not be any sex differences in classroom behaviors for these teachers. The equity project was initiated in the district one year prior to this study. Although the treatment effect was delivered only to teachers who volunteered to involve themselves in the project, in a school system this small, contamination of effect is bound to occur. Ideally, the Project should have involved control teachers from another school system and experimental teachers with no prior equity experience.

Results of this study do not conclusively support the effect of treatment on promoting equitable classroom practices. Significant differences in posttest do suggest that the treatment might prompt teachers to become more encouraging and direct. Structured interviews conducted with some of the experimental teachers indicated that the teachers felt that the intervention workshop encouraged them to become more equitable in their classroom practices and that the workshop made them aware of the effects of verbal and nonverbal communication on classroom interactions. The experimental group overwhelmingly recommended that the treatment workshops be offered to other teachers.

References

Achilles, C. M. and French, R. L. Inside classrooms: Studies in verbal and nonverbal communications. Danville, IL: The Interstate Printers and Publishers, 1977, 76.

Baus, M., et al. Sex and grade level of students: Context variables in elementary school teaching. National Institute of Education (DHEW), Washington, DC, 1976, 147, 260.

Brophy, J. and Good, T. Teacher-student relationships: Causes and consequences. New York: Holt, Rinehart and Winston, 1974.

Cosper, W. B. An analysis of sex differences in teacher-student interaction as manifest in verbal and nonverbal cues. Unpublished doctoral dissertation, The University of Tennessee, Knoxville, 1970.

Crawford, D. S. Analyses of verbal and nonverbal behaviors of teachers teaching reading. Unpublished doctoral dissertation, The University of Tennessee, Knoxville, 1980.

Dweck, C., Davidson, W., Nelson, S., and Enna, B. Sex differences in learned helplessness: II. the contingencies of evaluative feedback in the classroom: III. an experimental analysis. Developmental Psychology, 1978, 14, 268-276.

Felsenthal, H. Sex differences in expressive thought of gifted children in the classroom. American Educational Research Association, ERIC, 1970, ED 039 106.

French, R. L. A study of communication events and teacher behavior. Unpublished Doctoral Dissertation, Ohio State University, Columbus, 1968.

French, R. L. and Galloway, C. M. A description of teacher behavior: Verbal and nonverbal. Research in Education (August, 1969).

Guttentag, M. and Bray, H. Undoing sex stereotypes: Research and resources for educators. New York: McGraw Hill, 1976.

Jackson, D. and Lahaderne, H. Inequalities of teacher-pupil contacts. Psychology in the Schools, IV, (1976), 204-211.

Leinhardt, G., Seewald, A., and Engel, M. Learning what's taught: Sex differences in instruction. Journal of Educational Psychology, 1979, 71, 432-439.

Lippitt, R., and Gold, M. Classroom social structure as a mental health problem. Journal of Social Issues, 1959, 15, 40-49.

Meyer, W., and Thompson, G. Teacher interactions with boys, as contrasted with girls. In Raymond Kuhlems and George Thompson (Eds.), Psychological studies in human development. New York: Appleton-Century-Crofts, 1963, 510-518.

Sadker, D., and Sadker, M. Sex equity handbook for schools. New York: Longman, Inc., 1982.

Safilios, Rothchild, C. Sex-role socialization and sex discrimination: A synthesis and critique of the literature. Washington, DC: National Institute of Education, 1979.

Scott, W. A. Reliability of content analysis: The case of nominal scale coding. Public Opinion Quarterly, XIX (1955), 321-325.

Serbin, L. and O'Leary, D. How nursery schools teach girls to shut up. Psychology Today, 1975.

Sikes, J. Differential behavior of male and female teachers with male and female students. Unpublished doctoral dissertation, University of Texas at Austin, 1971.

Spaulding, R. Achievement, creativity, and self-concept correlates of teacher-pupil transactions in elementary school. (Cooperative Research Project No. 1352), Washington, DC: United State Department of Health, Education and Welfare, 1963.

APPENDIX A

Agenda for French's Training Workshop

NONVERBAL COMMUNICATION WORKSHOPS

I. Agenda For February 11

3:30 - 3:45	Introductions, Overview
3:45 - 4:30	"Win As Much As You Can" (Group Activity)
4:30 - 5:30	Presentation: Human Elements of Nonverbal Communication
5:30 - 6:00	Break
6:00 - 6:45	Presentation: Situational Elements of Nonverbal Communication
6:45 - 7:15	"As Students See Us" (Group Activity)
7:15 - 7:30	Wrap-up--Assignment

II. Objectives for This Meeting and Related Activities

As a result of his/her participation in this workshop session and related activities, the participant should be able to

1.1. Describe the process of classroom interaction.

1.2. Identify the elements of the percepted screen and explain their relationship to communication breakdown.

1.3. Identify seven (7) elements of nonverbal communication.

1.4. Analyze various self-related communication situations using ideas, models and concepts gained in this session.

III. Materials Provided

1. Game Sheet--Win As Much As You Can
2. "Operation Halley's Comet"
3. "Let's Communicate"
4. "The Sounds of Silence"
5. "Nonverbal Communication And Student Involvement"
6. "Lost At C"
7. "Why Are The Children In Boxes?"
8. "Teachers As Listeners"
9. Ergonomics"
10. "Nonverbal Communication In the School Bibliography"

IV. Assignments

1. An Assignment In Nonverbal Communication.

2. A Survey of The School And Its Constituents.

NONVERBAL COMMUNICATION WORKSHOPS

I. Agenda for February 25, 1981

3:30 - 3:45 Announcements, etc.

3:45 - 4:15 Discussion of Assignments from Workshop I

4:15 - 5:15 Presentation: Reading Student Nonverbal Cues

5:15 - 5:40 Break

5:40 - 7:05 Activity: BaFa BaFa

7:05 - 7:25 Discussion of Activity

7:25 - 7:30 Assignment

II. Objectives

As a result of his/her participation in this workshop session and related activities, the participant should be able to

1. Identify five areas in which students communicate nonverbally.
2. Identify areas of frustration for students attempting to relate and communicate within the school.
3. Identify cultural aspects of communication and describe their impact on the individual.

III. Materials Provided

1. "Classroom Communications: An Approach to the Individualization of Instruction"
2. "And I Have Feelings, Too"
3. "Nonverbal Patterns In Youth Culture"
4. "Sex Differences in Communication"
5. "Language and Sex"

IV. Assignments

1. An Assignment In Analysis of Pupil Nonverbal Cues
2. A study of Selected Students

NONVERBAL COMMUNICATION WORKSHOPS

I. Agenda for April 8, 1981

3:30 - 3:45 Announcements, etc.

3:45 - 4:30 Analysis of Slides

4:30 - 4:45 A Teacher Self-Assessment Activity

4:45 - 5:15 Some Ways of Monitoring Your Own Behavior

5:15 - 5:40 Break

5:40 - 6:15 IDER: A Systematic Way of Observing Your Verbal and Nonverbal Behavior

5:15 - 6:45 PIT: Another Systematic Observational Approach

6:45 - 7:15 Analysis of Videotaped Episodes

7:15 - 7:30 Wrap-Up

II. Objectives

As a result of his/her participation in this workshop session and related activities, the participant should be able to

1. Systematically collect information about his/her verbal and nonverbal behavior in the classroom.
2. Make decisions about the desirability of his/her present patterns of verbal and nonverbal behavior in the classroom.
3. Develop means for changing his/her patterns of classroom behavior as changes appear to be desirable.

III. Materials Provided

1. "An Inventory for Analyzing Nonverbal Teacher Activity" (Grant & Hennings)
2. "17 Questions"
3. "A Teacher Self-Assessment Activity"
4. "A Description of Teacher Behavior: Verbal and Nonverbal" (French & Galloway
5. "Communication Events: A New Look at Classroom Interactions" (French & Galloway)
6. "Some Thoughts on Self-Observation and/or Observation of Others"

IV. Assignments

1. A Teaching Assignment
2. Assignment In Analysis of Teacher Nonverbal Cues
3. Self-Analysis Via Videotape

APPENDIX B

PIT Coding Sheet

T = Task I = Institutional P = Personal M = Mixed
X = Male 0 = Female

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															

APPENDIX C

Reduction of 11 x 17 IDER Matrix

VERBAL	NONVERBAL			
	ENCOURAGING		RESTRICTING	
1. ACCEPTS FEELINGS	1. GIRLS	BOYS	1. GIRLS	BOYS
	OTHER		OTHER	
2. PRAISES OR ENCOURAGES	2. GIRLS	BOYS	2. GIRLS	BOYS
	OTHER		OTHER	
3. ACCEPTS OR USES IDEAS OF STUDENTS	3. GIRLS	BOYS	3. GIRLS	BOYS
	OTHER		OTHER	
4. ASKS QUESTIONS	4. GIRLS	BOYS	4. GIRLS	BOYS
	OTHER		OTHER	
5. LECTURES	5. GIRLS	BOYS	5. GIRLS	BOYS
	OTHER		OTHER	
6. GIVES DIRECTIONS	6. GIRLS	BOYS	6. GIRLS	BOYS
	OTHER		OTHER	
7. CRITICIZES OR JUSTIFIES AUTHORITY	7. GIRLS	BOYS	7. GIRLS	BOYS
	OTHER		OTHER	
8. STUDENT TALK (RESPONSE)	8. GIRLS	BOYS	8. GIRLS	BOYS
	OTHER		OTHER	
9. STUDENT TALK (INITIATION)	9. GIRLS	BOYS	9. GIRLS	BOYS
	OTHER		OTHER	
10. SILENCE OR CONFUSION	10. GIRLS	BOYS	10. GIRLS	BOYS
	OTHER		OTHER	